ABSTRACT OF THE DISCLOSURE

A method and system for allocating special-purpose computing resources in a multiprocessor system capable of executing a plurality of threads in a parallel manner is disclosed. A thread requesting the execution of a specific program is allocated a special-purpose processor with the requested program loaded on its local program store. The programs in the local stores of the special-purpose processors can be evicted and replaced by the requested programs, if no compatible processor is available to complete a request. The thread relinquishes the control of the allocated processor once the requested process is executed. When no free processors are available, the pending threads are blocked and added to a request-queue. As soon as a processor becomes free, it is allocated to one of the pending threads in a first-in-first-out manner, with special priority given to a thread requesting a program already loaded on the processor.